Hurricane Katrina Disaster Site Worker Course

Lesson 1

Introduction/Overview

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Overview

This lesson sets the stage for the Hurricane Katrina Disaster Site Worker Course and defines the course goal and audience. Types of disasters are listed and differences between disasters and normal construction and demolition worksites are discussed. How OSHA's role may vary with the size and type of the disaster event is discussed. The theme of personal responsibility for safety and health is introduced. How to use the "Personal Theme Worksheet" to record observations throughout the course that relate to this theme is taught.

Basic considerations for working at a crime scene are also described. (This is optional, as the information applies to terrorist events.)

This lesson will take approximately **1.5 hours**.

Objectives

This topic will enable the participant to recognize characteristics of a disaster site and their responsibility as a disaster site worker. Specifically, participants will be able to:

- State a primary theme of this course and utilize the "Personal Theme Worksheet"
- Give examples of how disaster sites differ from normal construction or demolition work sites
- Discuss their responsibility for making choices and decisions that enhance their own safety and health and that of others at a disaster site

Materials Needed for the Lesson

Trainer/Facilitator Requirements	Worker/Participant Requirements
Flipchart and markers	Student handout: "Personal Theme Worksheet"

Instructor Lesson Outline

I. Course Overview

A. Course goal

1. Awareness of safety and health hazards at a disaster site, PPE and decontamination
2. Incident command systems and how workers fit
3. Opportunity to practice donning and doffing a common type of respiratory protection

B. All hazard

C. Pre-event

D. Not a substitute for specific regulatory training requirements, e.g.,

1. 1910.134 Respiratory Protection
2. 1910.120 (e) Hazardous Waste Operations—either off-site instruction or site-specific training elements

E. Audience—Disaster Site Workers

1. ARE

a. "Skilled Support Personnel" during emergency (rescue) and recovery phases of a disaster. Examples:

(1) Heavy equipment operators

(2) Ironworkers

(3) Utility workers

b. "General Site Workers" who may be doing the same types of work during demolition, clean-up and site remediation activities at a disaster site. Examples:

(1) Heavy equipment operators

(2) Ironworkers

(3) Laborers

2. ARE NOT

a. Uniformed first responders

b. FBI agents or other governmental investigators

c. Engineering personnel or other professional service workers

II. Lesson Objectives

III. Theme of Personal Responsibility

A. Definitions

1. Hazard—any substance, situation, or condition that is capable of causing harm
2. Risk—a measure of the probability and severity of a hazard to cause harm
3. Safety—defined as a judgment of the acceptability of risk

B. Some health-threatening exposures can occur without producing immediate pain, irritation, or discomfort, e.g, silica dust

C. Personal responsibility theme

1. Life safety begins at birth
2. Workers have a responsibility to look out and make choices for their own life safety and health
3. “After all, heroes are workers, too.” (James Platner)
4. “Personal Theme Worksheet”

IV. Introduction to Disasters

A. Difference between emergencies and disasters

1. Emergencies—considered to be local in nature, where existing community or area resources are sufficient to provide adequate response
2. Disasters—more widespread affecting either large populations or large geographic areas or both, and require combinations of regional, state, and federal resources for effective response

B. Definition of terrorism—“Unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population or any segment thereof, in furtherance of political or social objectives”

C. Types of disasters

1. Natural
   a. Hurricane
   b. Tornado
   c. Flood

d. Earthquake
e. Fire
f. Pandemic

2. Man-made
   a. Accidental—major HAZMAT spill
   b. Terrorist—WMD
   c. Explosion
   d. Radiological release
   e. Transportation

3. Other
   a. Civil disorder
   b. Dam failures
   c. Energy shortages and utility outages

D. Concept: "all disasters start locally and end locally"

E. Anatomy of a disaster event and worker protection implications
   1. Rescue/recovery
   2. Clean-up

F. Types of hazards at disaster sites
   1. Chemicals
   2. Biological agents
      a. Standing water
      b. Fungal skin infections
      c. Mold
   3. Radioactive materials
   4. Explosives
   5. Slips, trips, and falls
   6. Electrical hazards
   7. Severed utility lines
   8. Heavy mechanized equipment
   9. Unstable structures and surface
   10. Traumatic incident stress

G. Federal OSHA role in major disasters
   1. Terrorist incidents or other events during which the National Response Plan or Federal Response Plan is

activated—during the rescue/recovery phases, OSHA will provide technical assistance to ensure that employers are taking necessary actions to protect workers from hazards on the job

2. When the National Response Plan terminates, or the response period evolves into a clean-up, OSHA will enforce its standards for private sector employees (especially HAZWOPER 1926.65 if hazardous substances present) (source: Letter to John D. Turley, 11-24-2003)

V. Characteristics of Disaster Sites (vs. normal construction or demolition worksites)

A.. Characteristics

1. Chaotic
2. Unplanned
3. Lots of public interest
4. Oversight from many parties
5. May be a crime scene if disaster intentionally caused
6. Fire, police, and other personnel involved may not be familiar with construction activities
7. Emotional environment due to visual effects of disaster, rescue and recovery operations

B. Crime scene considerations (Optional)

1. Site is a crime scene until proven otherwise
2. Workers must be careful to preserve evidence
3. Actions to take when an item that is potential evidence is encountered
   a. Stop the activity
   b. Do not pick up the item or examine it as it may be contaminated, fragile, and may contain other evidence such as fingerprints, hairs, fibers, etc.
   c. Stay with the item
   d. Notify an investigator; chain of custody concerns
   e. Do not resume work until told to do so
4. A criminal incident does not end until there is successful prosecution of the guilty person or persons

VI. Personal Responsibility

A. Possible worker concerns

1. Where to report to
2. Who to report to
3. Parking/transportation
4. Sanitation/facilities
5. Food
6. Rest periods/areas
7. Hazards
8. PPE
9. Other controls
10. Decon
11. First aid/medical
12. Who to bring safety concerns to

Lesson Sequence

Course Overview	• Review the course overview and goal (what course is and is not—disclaimer) • Review the audience—who it is and who it is not
Objectives	• Review lesson objectives
Theme of personal responsibility	• Define hazard, risk and safety • Ask class to consider whether you have to feel pain, irritation, or discomfort in order to have an exposure that will affect your health or the health of your family. • State the theme of personal responsibility for one's own life safety and health • Introduce the "Personal Theme Worksheet" to record observations and issues throughout the course that relate to this theme
Introduction to Disasters	• Introduce the topic of disasters: The difference between emergencies and disasters Definition of terrorism Types of disasters—natural and man-made; ask students to provide examples of each and personal experiences with safety/health issues during disasters Concept of "Start locally and end locally" Graph of disaster stages ("anatomy of a disaster") Types of hazards at disaster sites; ask students to suggest hazards they think might be present OSHA's role—technical assistance vs. enforcement
Characteristics of Disaster Sites	• Directed discussion: 1. Ask students to state differences between a normal construction site and a disaster site; state significant differences they miss

	2. Ask students to state differences between a normal demolition site and a disaster site; state significant differences they miss • Crime scene considerations
Personal Responsibility	• Directed discussion: Ask students to think of things they will want to know when they begin working at a disaster site that might affect their health or safety
Personal Theme Worksheet	• Ask the students to record at least one thing discussed in this lesson that is their personal responsibility when working at a disaster site

Tips for Worker/Participant Interaction

1. Open the course by asking students, "Why are you here?" and "What do you expect to get out of this training?"
2. Ask the students, "When does life safety begin? Who is responsible for your safety? What are your responsibilities versus those of your employer?"
3. Have students take 2-3 minutes individually to list activities at a disaster site that they would consider to be safe and activities that they would consider to be unsafe. Report out to share with the class.

References

1. "Disaster Site Worker Course: Course Overview, Goal, and Objectives". OSHA Office of Training and Education.
2. "Industrial Hygiene at the World Trade Center Disaster". James Platner (Paul Becker, Column Editor). *Applied Occupational and Environmental Hygiene Vol 17(2): 84-85, 2002.*
3. OSHA letter of interpretation to John D. Turley, November 24, 2003 – Application of HAZWOPER (1910.120) to terrorist and weapons of mass destruction incident responses. Available at www.osha.gov.
4. "Module 1: Understanding and Recognizing Terrorism". *Emergency Response to Terrorism: Basic Concepts (8-hour Class).* Produced by Community Research Associates, Inc., for the Office for Domestic Preparedness. 2003. (Optional)

5. "Part I: Introduction" and "Part II: The Role of the Skilled Support Person". *Emergency Planning & Response for Construction – Partnering with our Nation for Homeland Security.* Construction Safety Council,1-800-552-7744, www.buildsafe.org. 2004.

6. The FEMA website: www.fema.gov provides a listing of all the active disaster sites or emergencies. In addition, there is addition detail on natural disasters that can be reviewed and incorporated into the course curricula.

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Trainer Background Reference

Overview

Background[1]

Every day across the nation, emergencies occur that threaten our lives, well-being, property, peace and security. Every day, we rely on police officers, firefighters, emergency medical technicians, public health professionals, and others to arrive quickly and do what needs to be done to restore the safety, the security, the peace, and routine to our lives. These emergency responders are trained to handle such emergencies that occur day by day in our cities, towns, and villages. On rare occasions, emergencies occur that are so large in scale and so severe that local responders may not have the resources – people, equipment, expertise and funds to effectively and safely respond. Even in such cases, local responders do not hesitate to do what they have been trained to do – go to the site prepared to save lives, protect property, and remove the threat.

When a disaster, whether nature or man-made, overwhelms the resources and capabilities of local organizations, responders come in from other cities, counties, and states – jurisdictions near and far – as well as from federal agencies, to assist those with local responsibility. Skilled support workers are engaged for specialized activities, such as removing debris and restoring utilities and transportation. Other individuals including volunteers and organizations send food, supplies and equipment. Public officials arrive to examine the damage and consult with responders. One characteristic of these large rare, dynamic events is the rapidly evolving complexity that faces individuals trying to effectively manage all of the organizations and people, operations, and tasks, equipment, and supplies, communications, and the safety and health of all involved. Another characteristic is that all disasters present risks to emergency response worker – risks that may be familiar or unfamiliar, and that may vary widely depending on the nature of the event or the phase of the response.

[1] Source: *Protecting Emergency Responders—Vol. 3 Safety Management in Disaster and Terrorism Response*. Brian A. Jackson et al. Rand/DHHS(NIOSH). DHHS(NIOSH) Publication No. 2004-144.This background was taken largely from this report. It is suggested that this report should be reviewedin its entirety for full detail and explanations.

Major Disaster Characteristics and Challenges

Unlike the smaller-scale emergencies normally handled by one or more local organizations, major disasters have special characteristics that present unique safety risks and management challenges. Major disasters can:

- **Affect, injure, or kill large number of people** – while small-scale emergencies involve a few individuals or small groups of people, major disasters severely affect large numbers of citizens across communities, cities or entire regions. The attack on the World Trade Center claimed the lives of more than 2,800 individuals and put many thousands more at risk.

- **Cover large geographic areas** – most emergency incidents involve only a single building or other well-defined site. Major disasters, however, often extend over very large areas. In 1992, Hurricane Andrew left a trail of devastation that extended over 1,000 square miles.

- **Require prolonged response operations** – average response operations are relatively short, lasting only minutes or hours from first responders' arrival on scene to completion of response actions. In contrast, activities in major disasters can stretch into days, weeks, or even months. In New York City after September 11, 2001, the response was not officially completed until eight months after the attack.

- **Involve multiple, highly varied hazards** – whereas common emergencies usually present emergency responders with a limited number of risks, major disasters involve multiple hazards that can vary widely in nature. The World Trade Center site, for example, exposed workers to a complex mixture of physical and respiratory perils. Because of this wide variety, few responders will have the experience with everything they might encounter in the aftermath of a major disaster.

- **Require a wide range of capabilities and resources not routinely maintained by local response organizations** – major disasters require supplementary response capabilities not routinely maintained by local response organizations. Many natural disasters and major terrorist incidents require extensive rubble removal and management operations that local response

organizations are not equipped to carry out. Such requirements frequently turn the response efforts after a major disaster into a multiagency operation that can span all levels of government, nongovernmental organizations, and the private sector.

- **Attract a sizeable influx of independent volunteers and supplies** – in contrast with smaller emergencies generally handled by a local response organization, major disasters often attract large numbers of independent, or "convergent," volunteers. These volunteers may be members of other response organizations that come to a disaster site spontaneously or ordinary citizens who come out of a desire to help. Likewise, a major disaster also frequently prompts individuals and organizations to send large quantities of food and other supplies.

- **Damage vital transportation, communications, and public work infrastructures** – while localized disasters leave infrastructures vital to effective emergency response intact, major disasters can damage or destroy them. Hurricane Andrew severely damaged the local transportation infrastructure, with road signs destroyed and major roads blocked.

- **Directly affect the operational capacity of responder organizations** – unlike routine incidents, major disasters can directly affect the operational capacity of response organizations. The emergency responders lost in the World Trade Center collapse are one tragic example. Another occurred in Hurricane Andrew where homes of at least 128 police officers were damaged or destroyed. Many of the officers reported for duty not knowing what happened to their families.

These characteristics make it particularly difficult to manage the safety of responders.

Other Challenges of Major Disasters

Major disasters also create substantial hurdles on the organizational level as well. For example, the multiagency nature of responses to major disasters makes safety management significantly more complex. In an effort of this magnitude, where many different organizations unfamiliar with each other's operating practices are working side by side, a new set of secondary hazards can arise from the response operation itself. These secondary hazards, such as those generated by fire or law enforcement

activities occurring simultaneously with ongoing construction or utility operations, can pose serious risks to all involved responders. In addition, the management problems arising from operations involving many different organizations can also result in communication failures, logistical problems, and other conflicts that can directly or indirectly impact responder safety. These only compound the broad range of primary hazards stemming directly from the disaster.

Difficulties with Collecting Information

Collecting information about existing and potential hazard at a major disaster site is a critical component of ensuring the safety of disaster site workers. However, major disasters present numerous impediments to the information collection process. For example, most agencies lack the capabilities needed to monitor the wide variety of hazards potentially involved in disasters of this magnitude, and the involvement of many separate agencies in monitoring efforts can present problems coordinating hazard data.

To assess risks, implement safety decisions, and account for responders, managers need to know which emergency workers are taking part in the disaster operation, what they are doing, and what capabilities they bring. However, because major disasters scenes cover such large areas and require the involvement of so many response organizations, it is difficult to account for all responders.

Data on responders' injuries, illnesses, and exposures to toxic substances and physical hazards – as well as the general status of their health – is another critical information category. It enables safety managers to address the health and safety issues of specific workers and to intervene to reduce risks for the responder force as a whole as an operation evolves.

Yet in a major disaster, with so many people seriously injured or killed, responders seriously injured or killed, responders frequently focus on victims' medical needs instead of monitoring their own health. The large number of response organizations that take part in large-scale operations further complicates the collection and coordination of information about injuries and health status.

Effective safety management at a disaster site also involves selecting appropriate protective equipment for responders. Managers must understand the options available and how to choose among them. They

must be able to determine what additional safety resources the many different participating organizations may need when an operation begins and as it evolves. However, the high degree of uncertainty about the hazard environment during a major disaster complicates efforts to select among protective options and future needs.

At a disaster site, safety managers need to be able to meet the medical needs of responders at every stage of the response operation. Meeting these needs entails not only caring for responders after injuries happen, but doing everything possible to keep responder's out of harm's way - for example, enforcing reasonable work shifts and providing decontamination.

Yet the prolonged duration of operations during a major disaster requires response organizations to implement unfamiliar sustainability measures. In addition, the effects of many hazards stemming from major disasters may not appear until well after the response operation has ended.

Ensuring the Safety and Health of Responders

As a response operation involves increasing numbers of responders or response units, it become imperative to run the operation from an overarching strategic perspective. Without such leadership, even responders from a single organization are less effective in anything they do, including protecting responder safety.

At a major disaster, the magnitude of the hazards, the urgent threat to public safety, and the involvement of scores of organizations further amplify the importance of having managers and structures in place to deal with the barrage of situations and coordinate multiple responders.

Recognizing this need, response organizations in recent years have increasingly employed a comprehensive framework for managing the many different activities that organizations carry out during a response operation. Called the "Incident Command system" (ICS), it is a broadly recognized within today's response community as the preferred approach to disaster management. One of its hallmarks is its flexibility. Not only can it be used in small-scale emergencies, it is also designed to be scaled up as events increase in size and complexity. According, responders have employed it during both local crises and major catastrophes. Built into the ICS is an approach to managing the safety of responders.

Another way to ensure the safety of responders at disaster sites is to provide training. The diversity of response organizations in major disasters can result in some responders lacking needed information to follow safety policies or implement protective measures. One way of addressing these responder training needs is by providing workers necessary information at the disaster site. However, it is recognized that pre-incident training is more effective than providing training once an incident occurs.

Another key aspect of responder health protection is effective decontamination procedures. Decontamination may be critical to the prevention of illnesses, especially in the case of a nuclear, biological or chemical attack, and yet compliance with decontamination procedures, especially in the early phase of a major disaster, has proven to be a problem. In order to be used, decontamination facilities have to be readily accessible, and it is critical that response managers lead "by example." If management neither takes responsibility for nor endorses decontamination efforts, any attempt at establishing a system will likely fail. Insufficient decontamination can lead to the spread of contamination both on and away from the site.

To protect the mental health of responders at a disaster site, it is important to implement some form of critical incident stress debriefing or CISD. CISD is an intervention to prevent or mitigate post-traumatic stress among emergency responders. It is important to consider CISD in response planning. Beyond addressing the needs of traditional responder groups such as firefighters, police, and emergency medical services personnel, planning should consider non traditional responders such as construction and trade workers, relief workers, and volunteers.

Need for Disaster Site Course

This course was originally developed as a result of the lessons learned from the September 11, 2001 terrorist attacks and the anthrax incidents that occurred later that year. Due to the devastation caused by Hurricane Katrina in August, 2005 and the long-term response required, the course has been revised. However, many of the lessons learned from the World Trade Center site related to emergency preparedness still apply.

These lessons include:

- **Re-affirmation of the value of an effective emergency evacuation plan** – OSHA suggested that workplaces review and

practice their plans with an emphasis on finding alternate ways to exit buildings, developing a method to account for employees, designating a secondary rendezvous point farther away in case disaster the disaster zone prevents personnel from gathering at the primary site, and developing special procedures for any disabled employees.

- **Development of emergency response partnerships** with clear lines of authority for all functions at a site and with special emphasis on safety and health should be created immediately to promote effective disaster site management. OSHA is working with state emergency management officials and local responders around the country to prepare for contingencies involving exposure to occupational hazards. In addition, OSHA recommends emergency response partnerships consider emergency training in planning for disasters. OSHA identified training and outreach needs to address new and non-routine hazards faced by workers including skilled support personnel, safety and health issues related to incidents involving terrorism and weapons of mass destruction such as personal protective equipment, respiratory protection, chemical, biological, and radiological hazards, confined spaces, fall protection, and collapse hazards. Additional outreach was also needed for state and local emergency agencies to enhance worker protection.

- **Routine fit-testing for respirators needed** – emergency responders at all levels of government should be quantitatively fit-tested for respirators routinely.

- **Improved communication necessary** – OSHA recommended that channels of communication with other local, state, and federal agencies be improved. Also, regular and ongoing relationships with other agencies should be cultivated. Finally, emergency communication capability must be improved with the knowledge that landline and wireless communication systems may be overloaded in major emergencies.

- **Transportation needs during emergency identified** – OSHA identified a need to coordinate access to military transportation of personnel, equipment, supplies, and samples. Also, a general plan for emergency transportation. As the events of September 11 illustrated, security threats and other causes can delay or prevent commercial air traffic.

This course is designed for responders and skilled support workers who include heavy equipment operators and workers, truck loaders/drivers,

riggers and crane operators, torch cutters, sheet metal workers, utility workers, laborers and also include general site workers. These workers comprised a large group of the personnel who responded to the World Trade Center and Pentagon. It is anticipated that these types of workers will also play a large part in the Hurricane Katrina response. The focus of this course is to improve training and outreach to these workers.

Selected Instructor Presentation Products

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Worker/Participant Handouts/Exercises/Demos/Worksheets

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